

SAVDS - A Decision Support Tool (DST) Enabling UAV Flights Beyond Visual Line-Of-Sight, Phase I

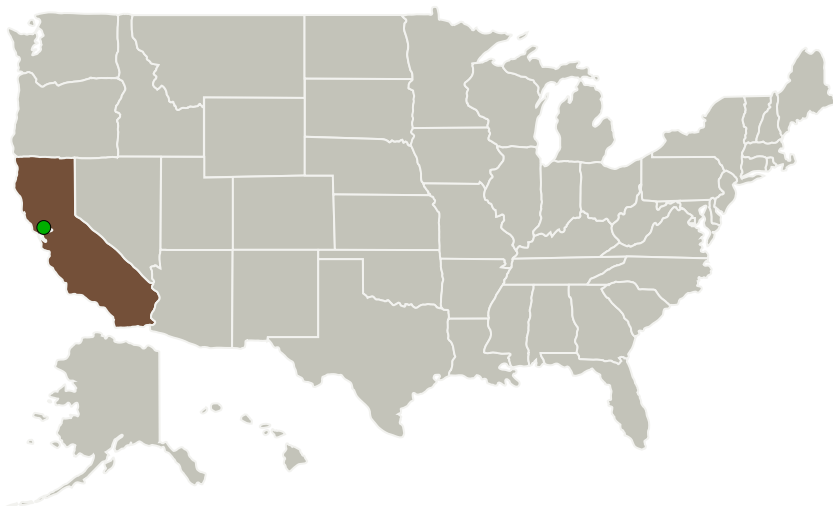
Completed Technology Project (2014 - 2014)



Project Introduction

The Sense-and-Avoid Display System (SAVDS®) represents a technology that was developed to address the mid-air collision risk for low-flying Unmanned Aerial Vehicles (UAVs). Over a 4-week period in July-August 2013, SAVDS was used as a decision support tool (DST) for NASA's Marginal Ice Zone Observations and Processes EXperiment (MIZOPEX) Project in northern Alaska. Integrated with a Thales-Raytheon Systems (TRS) Sentinel AN/MPQ-64 (FRP-5) radar data feed, SAVDS was housed in a UAV Ground Control Station and served the time-critical DST function of showing the real time location and altitude of NASA-supported UAVs and other airborne vehicles within and around a pre-defined safe separation transit corridor. It was within this operational framework that SAVDS served as a DST which enabled the first FAA-approved series of NASA-supported UAV science flights in the domestic National Airspace System without ground-based or chase plane-based visual observers. In this Phase 1 SBIR, SAVDS, Inc. seeks to further refine and improve its functionality by performing a feasibility test involving detailed analyses of SAVDS log files from the MIZOPEX Project and other past UAV missions equipped with the Sentinel radar. Advancements to SAVDS, as here set forth in this SBIR Phase I proposal, are envisioned as enabling future NASA Earth Science Missions that will ultimately involve fully autonomous UAVs. The long-term goal is to embed the data processing capabilities and sensor-and-avoid algorithms of SAVDS in the onboard flight safety systems of UAVs that will be collecting airborne earth science data beyond the range of visual observers.

Primary U.S. Work Locations and Key Partners



SAVDS - A Decision Support Tool (DST) Enabling UAV Flights Beyond Visual Line-of-Sight Project Image

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Organizations Performing Work	Role	Type	Location
SAVDS, Inc.	Lead Organization	Industry	Mountain View, California
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations

California

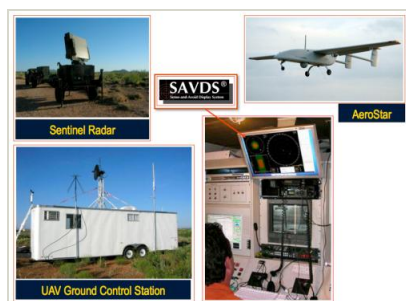
Project Transitions

**June 2014:** Project Start**December 2014:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137545>)

Images



Project Image

SAVDS - A Decision Support Tool (DST) Enabling UAV Flights Beyond Visual Line-of-Sight Project Image (<https://techport.nasa.gov/image/135652>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

SAVDS, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

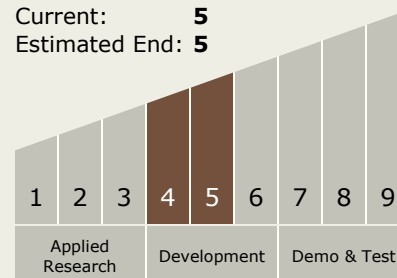
Carlos Torrez

Principal Investigator:

Stanley Herwitz

Technology Maturity (TRL)

Start: 4
Current: 5
Estimated End: 5



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Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
 - └ TX16.1 Safe All Vehicle Access

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System